

What is claimed is:

1. A semiconductor device comprising:

a semiconductor chip having a plurality of electrode pads formed at a periphery of a front surface thereof;

a wiring film formed on a front surface side of said semiconductor chip by laminating an insulation film on a lead pattern;

an outer connection terminal formed so as to protrude above said wiring film;

a plurality of leads extending from said wiring film and connected to the electrode pads on said semiconductor chip at extended tip ends thereof;

an external ring provided so as to surround said semiconductor chip and formed with a plurality of through holes or blind holes; and

a sealing resin filled between said semiconductor chip and said external ring.

2. A semiconductor device according to Claim 1,

further comprising an outwardly expanded open portion formed on an inner circumferential surface of said external ring and positioned on a rear surface side of said semiconductor chip.

3. A lead frame comprising:

a wiring film formed by laminating an insulation film on a lead pattern;

an external connection terminal formed so as to protrude above said wiring film;

a plurality of leads extending from said wiring film and forming connecting portions to electrode pads on a semiconductor chip at extended tip ends thereof; and

an external ring provided outside said wiring film, having an opening portion capable of housing said semiconductor chip and formed with a plurality of through holes or blind holes.

4. A lead frame according to Claim 3, further comprising an outwardly expanded open portion formed on an inner circumferential surface of said opening portion of said external ring and positioned on a rear surface side of said semiconductor chip.

5. An electronic apparatus including a printed wiring board loaded with a semiconductor chip, said semiconductor device comprising:

a semiconductor chip having a plurality of electrode pads formed at a periphery of a front surface thereof;

a wiring film formed on a front surface side of said semiconductor chip by laminating an insulation film on lead patterns;

an outer connection terminal formed so as to protrude above said wiring film;

a plurality of leads extending from said wiring film

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and connected to the electrode pads on said semiconductor chip at extended tip ends thereof;

an external ring provided so as to surround said semiconductor chip and formed with a plurality of through holes or blind holes; and

a sealing resin filled between said semiconductor chip and said external ring, wherein said external connection terminal and an electrode on said printed wiring board are connected.

6. An electronic apparatus according to Claim 5, further comprising an outwardly expanded open portion formed on an inner circumferential surface of said external ring and positioned on a rear surface side of said semiconductor chip.

7. A method of manufacturing a semiconductor device formed by loading a semiconductor chip on a wiring film comprising the steps of:

forming leads made of metal on a metal base constituted by a plurality of metal layers including an etching stopper layer;

partially etching an outer peripheral portion of said metal base where said leads are formed to form an external ring and through holes or blind holes of said external ring;

forming an insulation film having a plurality of openings on said leads;

forming external connection terminals on the openings

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of said insulation film to electrically connect the same to said leads;

etching said metal base from the side opposite to the surface where said external terminals are formed so as to leave said external ring utilizing said etching stopper layer;

removing an unnecessary part of said metal base by selective etching to electrically separate said leads independently, thereby forming said wiring film; and

connecting extended tip ends of said leads extending from said wiring film to electrode pads on said semiconductor chip.

8. A method of manufacturing a semiconductor device according to Claim 7, further comprising the step of etching an inner circumferential surface of said external ring in a tapered configuration to form an outwardly expanded open portion positioned on a rear surface side of said semiconductor chip.

9. A method of mounting a semiconductor device on a wiring board, wherein the method of manufacturing a semiconductor device according to Claim 7 comprises the step of connecting said external terminals to electrodes on said wiring board.

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